

REMARKS/ARGUMENTS

Claims 1 and 27 are cancelled.

Support for each amended claim is found at the originally filed claims and throughout the originally filed specification. Additionally, support for the feature of present Claim 2 “the selenium and/or tellurium” is found at, for example, page 1, second paragraph, last two lines, of the originally filed specification. Support for the present Claim 2 feature “heating to a temperature ranging from 350 °C to 450 °C” is found, for example, at page 15, first paragraph, 6th line, of the originally filed specification.

No new matter is believed to have been added.

The indefiniteness rejection of Claims 1-29 is believed to be obviated by claim amendments and cancellations.

The anticipation rejection of Claim 1 as being unpatentable over Poland is obviated by cancellation of Claim 1.

The anticipation rejection of Claim 1 as being anticipated by Handwerk is obviated by cancellation of Claim 1.

The obviousness rejection of Claims 1-3 and 5-6, and the anticipation rejection of Claim 2 as being unpatentable in view of Poland, are respectfully traversed. The obvious rejection of Claim 1 is obviated by cancellation of Claim 1.

Present Claim 2 contains the features “(A) treating a material comprising selenium and/or tellurium, and platinum group elements, with alkali, wherein in (A), a flux comprising a mixture of caustic soda and sodium nitrate is added to said material comprising the selenium and/or the tellurium, and the platinum group elements, to form a mixture, and the resulting mixture is melted by heating to a temperature ranging from 350 °C to 450 °C.” These features, and an attendant advantage resulting from these features, are not described or suggested by Poland. Poland, at column 2, lines 38-40, describes heating Poland’s “mixture

within a temperature range of from 900° F to 1200° F.” Poland’s temperature range of 900° F to 1200° F is equivalent to 482° C to 648° C. Applicants note that present Claim 2 describes “heating to a temperature ranging from 350 °C to 450 °C,” and that this range is not described or suggested by Poland.

Further, page 15 of the originally filed specification, first paragraph, describes in part “At temperatures within this range [heating to a temperature ranging from 350 °C to 450 °C], the sodium nitrate (NaNO_3) generates oxygen but is less likely to generate NO_x , whereas if the temperature exceeds this range [i.e., is moved into the temperature range described by Poland] the proportion of NO_x generation increases, and the oxidizing power also strengthens, increasing the proportion of hexavalent selenium.”

Page 15 of the originally filed specification, third paragraph, describes in part that hexavalent selenium is “a problem.”

Accordingly, Poland does not describe or suggest heating to a temperature ranging from 350 °C to 450 °C. Further, heating to this temperature range reduces the amount of hexavalent selenium, and this advantage is not described or suggested by Poland, thus making the reduction in hexavalent selenium, based on the disclosure of Poland, a superior and unexpected result.

Because Poland does not describe or suggest all of the features of present Claim 2, and the claims depending therefrom, and because the process of present Claim 2 produces a superior and unexpected result of reducing the formation of hexavalent selenium, Applicants respectfully submit the present claims are not anticipated by or obvious in view of Poland. Withdrawal of the obviousness and anticipation rejections is requested.

The obviousness rejection of Claim 4 as being unpatentable in view of Handwerk and Pittie is respectfully traversed because the references do not describe or suggest all of the features of present Claim 4. Handwerk's process describes heating a slime and soda ash (e.g., sodium carbonate) (see, for example, Handwerk, column 8, Examples 1 and 2). Handwerk does not describe or suggest heating with a mixture of caustic soda and sodium nitrate, a feature of present Claim 4. The disclosure of Pettie does not cure the deficiency of Handwerk. Withdrawal of the obviousness rejection is requested.

The obviousness rejection of Claims 1 and 7-14 as being unpatentable over Subramanian is respectfully traversed. The rejection of Claim 1 is obviated by cancellation of Claim 1.

Subramanian, at column 11, lines 19-30, describes treating a leach discharge "with an alkali metal hydroxide ...to precipitate metal values such as Cu, Ni, Ag and Te." "The caustic treatment is carried out ... to maximize the dissolution of selenium and precipitation of the other metal values." Thus, the treatment of Subramanian dissolves selenium and precipitates out tellurium (e.g, Te).

Present Claim 7 has, as a feature, "wherein the material comprising the selenium and/or tellurium and the platinum group elements is leached with alkali at a temperature within a range from 60 °C to 80 °C, causing the selenium and/or tellurium to migrate into an alkali liquid, and a solid-liquid separation is then conducted to separate a resulting mixture into a solid fraction containing platinum group elements, and a liquid fraction containing selenium and/or tellurium."

In contrast, Subramanian discloses the alkali treatment in Figs. 1 to 3. The temperature in the caustic leach of the method explained using Fig. 1 is at least 170 °C,

preferably about 200 °C in D3 (column 2, lines 20 to 24). The temperature at the caustic oxidative pressure leach (2) in Fig. 2 is at least 170 °C (column 6, line 48). The temperature at the caustic addition (B) in Fig. 3 is about 90 °C up to about the boiling point of the solution (column 11, lines 27 and 28).

Thus, Subramanian describes temperatures in the alkali treatment which are away from the range of 60 to 80 °C, and a temperature range of 60 to 80 °C is a feature of present Claim 7. Accordingly, Subramanian does not describe or suggest all of the features of the present claims.

Further, using the separation process of present Claim 7, as described at page 1, second paragraph, of the originally filed specification, selenium and tellurium can be dissolved and separated from the platinum group elements at normal pressure, and without the use of an oxidizing agent. Accordingly, selenium and tellurium can be separated easily from a process precipitate containing selenium and tellurium as well as platinum group elements, and the platinum group elements can be selectively recovered with a yield of 95% or higher. Moreover, because the platinum group elements are not oxidized during this alkali leaching, highly insoluble oxides such as rhodium oxide and ruthenium oxide are not produced, meaning the platinum group elements can be subsequently easily dissolved. These superior results, based on the disclosure of Subramanian, are surprising.

Because Subramanian does not describe or suggest all of the features of present Claim 7, and the claims depending therefrom, and on the basis of superior and unexpected results, withdrawal of the obviousness rejection is respectfully requested.

Applicants submit the present application is now in condition for allowance. Early notification to this effect is earnestly solicited.

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Respectfully submitted,

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A handwritten signature in black ink, appearing to be 'CJ Andres', written over a horizontal line.

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